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PRACTICES IN THE HANDLING OF WOOD AND ITS INCIDENCE IN THE ARTISAN SECTOR OF AMBATO

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— Abstract—

This essay introduces an examination of the artisanal sector on the good and bad practices in the use of wood and its incidence in the productive and commercial sector in the city of Ambato, Tungurahua Province. It is proposed with the objective of determining the level of knowledge in the use of wood in artisan workshops and the repercussion at environmental and commercial level within the environments of production and commercialization of products of the sector. The methodology used was exploratory, based on field research carried out in ten carpentry workshops and ten craft sales centers (informal distribution points and popular fairs). It was identified that the informal sector that works with wood, wastes a considerable percentage of the material during the productive process. This has a number of origins such as: low knowledge in the manipulation of specialized tools, lack of exhibition strategies and sale of wooden objects in craft stalls and popular fairs, deterioration by the manipulation of buyers, among others. The above shows a significant reduction in the life cycle of wooden objects and directly affects the decrease in sales of products, which has led several artisan workshops to relegate their activities of craft work by a work of intermediaries in the provision of raw material to industrial producers. This document concludes that the responsible handling of wood (good practices) represents a determining factor to raise the sales rate and the appreciation of wood crafts in the sector, also creates a friendlier sense in the use of the material that discreetly affects the decrease of the environmental impact.

Keywords

Wood treatment; artisan practices; artisan sector.

Artisanal wood production is established from the emblematic traits of the identity of the city of Ambato, Ecuador. This idea became the main objective of the essay to determine the level of knowledge in the use of wood in craft workshops of the city during the process of producing a craft. This facilitates the estimate of future actions to detect malpractices in wood use, and promote strategic activities for the the artisanal wood sector development in production techniques and value addition to the artisanal products available in the market (Linares, 2015, p.7).

What was previously mentioned has an impact in the construction elements, the manufacturing process, and the manipulation of wood and its derivatives, for the artisanal objects production of different commercial value (Calderón, 2013, p.10). Calderón explains that, in Ambato out of a total of 500 artisans only 27 export thanks to the quality achieved in the manufacturing process and in the finishes of their products, good practices in the manufacturing and packaging process. In addition, in some cases, there are external agents that cannot be controlled, such as the manipulation of customers in the exhibition process that directly affects the sale of the product.

The artisans of the city of Ambato produce objects with wood and other materials, conceived from transcendental craft processes and adapted to their economic, spatial and labor skills. In this sense, Bacheschi (1980) explains that, at a product level, the craftsman has established productive and aesthetic standards, over the years with the conservation of identity features of their environment; however, as a result, a lack of management is generated of innovation and design components in the exercise of new proposals.

The manufacturing processes of artisans have generated rudimentary wood treatment methods, which is called malpractices in the process and use of tools, material and waste management, finishing alternatives and exhibition of objects, which results in the economic loss of the artisan (Pesantes, 2008). In this sense, Calderón (2013, p.10), considers it fundamental to know the material in a profound way, and to achieve the maximization in the use of resources.

The idea of diminishing handicraft sales responds to Thompson (2005): "At present, achieving full customer satisfaction is an essential requirement to gain a place in the minds of customers and, therefore, in the target market." In this sense, if the artisan does not incorporate innovation processes and shows greater interest in the handling of wood, the initial intention of selling it is hindered. This generates lower profitability, loss of confidence, little relation with the product and therefore low perception of quality.

METHODOLOGY

The document introduces field research based on observation of wood treatment processes, interviews with producers and sellers of the artisanal sector, among other techniques. This process was defined with the purpose of carrying out an analysis of good and bad practices in the handling of wood in craft workshops in the city of Ambato. For the sample, ten carpentry workshops and ten handicraft sales centers (informal distribution points and popular fairs) were chosen around the city.

During the research process, twenty artisans were gathered, each with a minimum of five years of experience in the wood craft sector. Each artisan manufactures objects and distributes them directly at popular festivals in the city of Ambato, of which fifteen of them are affiliated to the National Board of Artisans (JNDA). (MCP, EC, 2011).

The observation and the interview for the productive sector were oriented to seven processes of the manipulation of wood: 1) the choice of raw material, 2) line drawing; 3) cut; 4) sanding; 5) assembly; 6) wood finishing; and 7) waste. It is important to mention that the data was collected in order to understand the dynamics of the wood sector, concluding that, in the choice of wood, the lines, the finishing, and the generation of waste, are those that have a high percentage of the malpractice with the material (See Table 1).

Table 1. Malpractices in the use and treatment of wood

Wood malpractices		
	Workshops studied	Observations
Wood selection	16	In the type of material choice, there is no compatibility between the properties of the wood with the functional and structural scope of the object. Little knowledge about properties and characteristics of wood, prior to the choice of material.
Line drawing	13	The lines are drawn with rudimentary and inaccurate tools.
Wood cut	6	Inadequate machinery is used. The tools are in poor condition. Ex. Rust and wear.
Sanding	7	The sanding work is not very thorough and deep. Apprentices have low motivation at work.
Assembly	7	Little knowledge of types of assemblies. Low quality in the assembly process, poor measurement accuracy.
Finish	14	There is no previous wood cleaning. Mix enamel with water and lacquer at the same time.

Waste	15	Residue is thrown away as waste. Lack of knowledge about the possibilities of residue reuse. They do not present norms or regulations in the processes of waste management.

Source: Authors' making

To contextualize the above information, an analysis of the physical conditions of handicrafts sale is shown in ten selling stands of popular festivals in the city of Ambato (See Table 2).

Table 2. Good practices in the production and treatment of wood

Good practices on wood		
	Workshops studied	Observations
Wood selection	4	Material selection is made in relation to the productive capacity of the workshops.
Line drawing	7	In the drawing of complex lines, squares, rules, meters and compass are used.
Wood cut	14	All necessary cutting tools are considered.
Sanding	13	The type of sandpaper is selected in relation to the type of wood and finish.
Assembly	13	Assembly construction is done respecting the necessary resistance level of the object.
Finish	6	The finish is adjusted to the limitations of resources.
Waste	5	Part of waste is used for partial activities such as filler putty, small objects, among others.

Source: Authors' making

In relation to the handicrafts sale, interviews were conducted with structured questions to the wood sector sellers, to measure the level of quality of wood products for sale, including: finished in wood, presentation, among others (Mier and Porto, 2009). In that sense in the last ten years entrepreneurship has been incorporated into Ecuadorian culture with concern about the level of presentation of products for sale. However, the economic progress of woodcrafts sales has diminished due to the lack of innovation and the physical conditions of the products; this projects a visible absence of creativity of the artisans perceived by the clients. The above described causes a low constantly desire to buy and consequently the decline of craft sales in the sector, perpetuating this phenomenon for the last ten years (Parish, 2010, p.9; Sales, 2013).

Table 3. Physical conditions of handicrafts sale

	Stalls	Observations
Chips	7	Chip residues in crafts with finishes.
Stains like: grease, paint	5	People manipulate objects and leave traces of grease and dirt.
Low finish	8	A single wood treatment.
Broken objects	3	Visible broken parts.
Used objects	4	Returns are generated after the acquisition. The craftsman places it again for sale
Environment	10	Exposed to all types of weather conditions, rain, sun, dust, among others.

Source: Authors' making

PRACTICES DURING THE PRODUCTION AND SALE PROCESS

The wood in the productive field must be treated under special considerations from obtaining, choosing, storage, treatment to sale. The strictness in the production process allows to guarantee a quality product, however, the workshops of the lumber sector in Ambato, due to legal-labor considerations and reduction of fixed costs[1], hire young and inexperienced personnel, to which we will call in the document as a young worker, lacks technical knowledge and experience. This dynamic is developed under contract conditions for men between 17 and 20 years old with low experience in woodworking. For the purposes of the study, it is considered important because it is the factor with the highest incidence in the reduction of quality in crafts, this is asserted because the time to exercise in the innovation of products is replaced by the time of training in the trade, in addition to have unstable staff at work for short periods of time. The described causes losses of resources, economic, material, temporary and human, resulting in the lack of efficiency in the generalized wood craft workshops in the sector (Galarza Ventura, 2015).

The effectiveness in processes lies in a good manufacture from the flexing of the material, brushing, sanding and assembly for Pascha (2013), and the production process should be the ideal start to regulate planning stages, standardization and responsibility in the handling of a material (Montero

1 This situation is far from the traditional scenario where the young worker received the apprenticeship (an individual who assumed the commitment to serve a master craftsman during a certain period of time). In addition, an obligational relationship was established where the teacher assumed the commitment to train the apprentice in such a way that, over the years, he could become an officer (qualified worker without the title of master craftsman) or teacher.

and Muñoz, 2006). The correlation in process management transcends in the maximization of benefits and the efficient use of resources, by influencing the reduction of environmental impact.

In relation to the above and following these observations, implementing action measures in craft workshops is paramount, as follows:

- Do not accumulate large amounts of wood in outdoor repositories
- Inspect the wood prior to its treatment
- Normalization of processes and procedures for apprentices.
- Basic planning of resource utilization strategies

Problems at the production level transcend the commercial environment, due to its direct impact on the presentation of crafts easily discernible by customers in the exhibition. A good exposure of the product allows raising the attention rate of people and therefore facilitates the sales process (González, 1979, Murrilo, 2014). At present it is easier to promote the exhibition of products through online media and social networks, where artisanal stalls are replaced entirely on public roads, but it causes the client to lose interaction with the object. In this sense, to rescue the handicraft sale process, the following should be considered:

- Organization of products by color, size, gender, theme, use or target
- Propose creative ways of organizing products
- Encourage cordiality with the seller
- Make the identity of the city visible in the product

The success of a product is based on efficiency through low costs and high productivity, effectiveness through reliable and fast delivery, high and consistent quality, and flexibility through the rapid introduction of new products and a wide variety of services derived from the purchase. In this sense, productivity is the result of the interaction between the desired product (in quantity and quality) and the factors that affect it such as labor, capital, materials and energy, made visible in its purchase (Galarza, 2015).

RESULTS

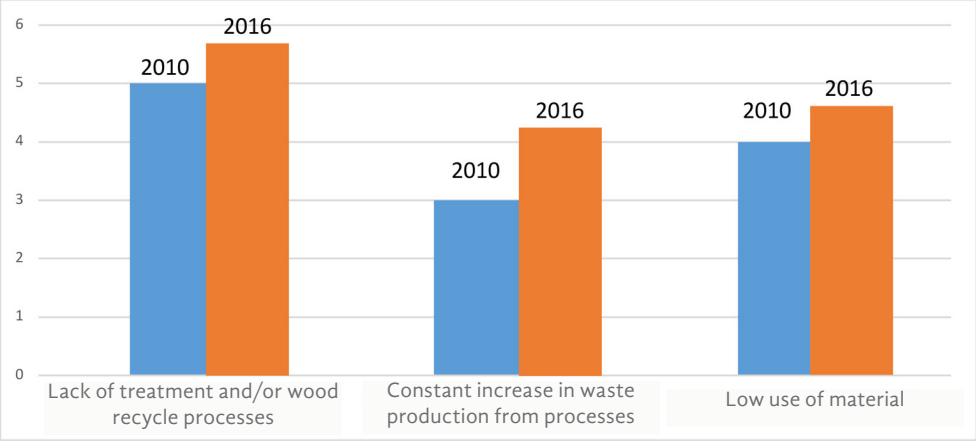
The bad practices regarding the handling of wood in craft processes originate from the lack of knowledge of technical parameters in the handling of the material during all the phases, a finding derived from the inexperience of the young workers described in the previous section. This phenomenon causes economic and environmental impacts, defined below:

Rating of importance:

(1) Very slight
(2) Not important
(3) Moderately important
(4) Important
(5) Very important

In relation to production processes, it is estimated that the aforementioned problems (choice of wood, line layout, cutting, finishing and waste) affect the increase in production costs significantly. Furthermore, this situation has an impact on the amount of production, sales volume and size of the workshops and limits their capacity to face the market as visible signs of innovation and quality.

Figure 1. Environmental Impact



Source: Authors' making

On the other hand, the absence of wood treatment and/or recycling processes is considered to be the most important procedure, since artisan workshops lack wood treatment processes and other materials associated with their production processes. It also causes a gradual increase in waste, becoming in complex repositories hard to control. In this sense it is revealed that 50% of wood waste is permanently discarded and the other 50% becomes repositories of raw material exposed to the environment that, for an extended time, could cause economic and health damages in the workers of the craft workshops.

Regarding the know-how[2] treatment for waste optimization, it was found that young workers do not have the necessary knowledge to practice the profession; which generates damage to materials, loss of time, money and tools damages. In addition it was determined that younger craftsmen have little knowledge of methods and techniques for the production of objects, and their sale. This finding is considered important due to the high turnover of apprentices in the workshops. In 90% of the workshops studied, the new craftsmen are employed with a projection to one year of work, which is considered to be a very short time to learn and master wood treatment techniques in an effective way (France, Tapia and Yela, 2013). This assertion impacts on the productive process, use of resources, use of tools and machinery, among others, which means that the craftsman does not reach a considerable level of improvement of techniques for the use of wood, which results in the reduction of the quality and value of craftsmanship in the Ambato workshops.

This is relevant for the study and confirms the established by Valverde (2010, p.7), who states that, for the production process it is necessary to know how to use the wood according to its type and properties. Also know the needs and conditions of the object to be built, exposure to weather and sustainable treatment measures.

Thus, the most latent problems occur in the first place, 45% are largely unaware of the properties of the wood giving rise to poor quality products, easily breaking products, low aesthetic level, all this leading to the reduction of its sale price. Secondly, 32% of wood products produce chips and imperfections. In third place, 45% have stains from the use and manipulation of customers, 45% have bad finishes and presentation, which generates low attraction in the purchase process. On the other hand, in fourth place, during the process 50% does not use measurement tools to draw lines; this produces bad cuts and directly affects waste. Finally, having rotating young workers makes it difficult to teach wood handling and treatment techniques, distancing themselves from establishing regulations and work protocols that lead to efficient practices in the workshops.

In relation to the aforementioned, the income from the sale of wood crafts, has presented a decline in Ambato, extending the dynamics to consumption

2 It refers to the way technology and knowledge transfer concerning the efficient treatment of waste.

throughout the country, which transcends even more important aspects such as: the sense of belonging and local identity of the city of Ambato.

In relation to crafts, 80% of craft stalls in fairs are outdoors, prone to noise, theft and severe climate changes, which directly affect the crafts' quality and physical presentation. Also, transport is a factor that directly affects the product, so, for the commercialization of the same, the artisans transport with little care and safety standards that guarantee the optimal conditions of the crafts.

Given the above, under these basic, environmental, economic and commercial indicators, addressed in the document, it is essential to place more emphasis on good and malpractices regarding handicrafts in the timber sector because of their projection at the local and national levels.

CONCLUSION

A panoramic vision of the artisanal wood sector has been exposed, its current situation, causes of the decline in sales, the use of wood and commercialization, factors that cause an impact on the economy of wood crafts in the city of Ambato. Malpractices in the productive stage and the lack of knowledge are factors that determine the quality of the product, which causes an acceleration of its useful life.

In general, 56% of artisan workshops that use wood for the manufacture of their products create malpractices both in the production and sale of wood crafts. This, in a broader sense, describes the wood craft sector as a potential agent that generates environmental impact and does not promote the recovery of wood within the planning of productive processes. Consequently, the artisan workshops of the city of Ambato do not acquire responsibility of the wood's manipulation in any phase of its life cycle.

The findings of the study show that the production of wood objects deserves more attention and an impulse of innovation through the design and good management of the tools that allow the development of products with higher quality. Thus, the wood artisanal sector is not an example of good practices in wood handling, considering this sector as the one with the highest wood handling in the city of Ambato. Concluding that, the artisans still preserve rudimentary techniques that do not maximize the use of wood and this is reflected in the most latent problems described throughout the document, which highlights the productive and commercial reality of the artisanal sector, which needs a prompt intervention in the city.

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